produce sparks that will ignite an explosive mixture of methane and air.

(f) It shall not be possible to obtain a difference of potential between any two accessible points of the cap lamp when assembled for use.

NOTE: Paragraph (a) of this section is issued under the authority of Sec. 101 of the Federal Mine Safety and Health Act of 1977, Pub. L. 91–173 as amended by Pub. L. 95–164, 91 Stat. 1291 (30 U.S.C. 811). All other paragraphs in this section continue under the original authority.

(Sec. 101, Federal Mine Safety and Health Act of 1977, 91 Stat. 1291 (30 U.S.C. 811))

[Sched. 6D, 4 FR 4003, Sept. 21, 1939, as amended at 47 FR 11369, Mar. 16, 1982]

§ 19.8 Protection against bodily hazard.

This hazard is chiefly due to the possible burning of the wearer by electrolyte spilled from the battery. MSHA therefore requires that:

(a) *Spilling of electrolyte.* The lamp shall be so designed and constructed that, when properly filled, the battery will neither leak nor spill electrolyte under actual service conditions. Lamps passing a laboratory spilling test will be considered satisfactory in this respect, contingent upon satisfactory performance in service.

(b) *Corrosion of battery container.* The material of which the container is made shall resist corrosion under conditions of use.

§ 19.9 Performance.

In addition to the general design and the safety features, MSHA considers that a lamp of permissible type should meet certain minimum requirements with respect to performance, as follows:

(a) *Time of burning and candlepower.* Permissible electric cap lamps shall burn for at least 10 consecutive hours on one charge of the battery and shall give during that period a mean candlepower of light beam of not less than 1.

(b) *Bulb life.* The average life of the bulbs shall be not less than 200 hours, and at least 92 percent of the bulbs shall have a life of 150 hours. The life of a bulb is the number of hours its main filament will burn in the cap lamp or its equivalent.

The life of a bulb having main filaments in parallel is considered ended when the first filament ceases to burn; the life of a bulb having independent main filament is considered ended when the last filament ceases to burn.

(c) *Bulb uniformity.* (1) The bulbs submitted shall meet the following minimum requirements for variation in current consumption and candlepower:

(2) The current consumption of at least 94 percent of the bulbs shall not exceed the average current by more than 6 percent. The candlepower (s. cp.) of at least 90 percent of the bulbs shall not fall short of the average candlepower by more than 30 percent.

(d) *Corrosion of contacts.* Battery terminals and leads therefrom, as well as the battery gas vents, shall be designed to minimize corrosion of the electrical contacts.

[Sched. 6D, 4 FR 4003, Sept. 21, 1939, as amended at 47 FR 11369, Mar. 16, 1982]

§ 19.10 Material required for MSHA records.

In order that MSHA may know exactly what it has tested and approved, detailed records are kept covering each investigation. These include drawings and actual equipment, as follows:

(a) *Drawings.* The original drawings submitted with the application for the tests and the final drawings, which the manufacturer must submit to MSHA before the approval is granted, to show the details of the lamp as approved. These drawings are used to identify the lamp in the approval and as a means of checking the future commercial product of the manufacturer.

(b) *Actual equipment.* (1) If MSHA so desires, parts of the lamps which are used in the tests will be retained as a permanent record of the investigation and of the lamps submitted.

(2) If the lamp is approved, MSHA will require the manufacturer, as soon as his first manufactured lamps are available, to submit one complete lamp, bearing the approval plate, as a record of his commercial product.

§ 19.11 How approvals are granted.

(a) All approvals are granted by official letter from MSHA. A lamp will be

design of cap lamp batteries: 100 amperes for a 4-volt battery; 75 amperes for a 6-volt battery; 50 amperes for an 8-volt battery.

approved under this part only when the testing engineers judge that the lamp has met the requirements of the part and MSHA's records concerning the lamp are complete, including drawings from the manufacturer that show the lamp as it is to be commercially made. No verbal reports of MSHA's decisions, concerning the investigation will be given, and no informal approvals will be granted.

(b) As soon as the manufacturer has received the formal approval he shall be free to advertise his lamps as permissible.

[Sched. 6D, 4 FR 4003, Sept. 21, 1939, as amended by Supp. 1, 20 FR 2718, Apr. 23, 1955]

§ 19.12 Wording, purpose, and use of approval plate.

(a) *Approval plate.* The manufacturer shall attach, stamp, or mold an approval plate on the battery container of each permissible lamp. The plate shall bear the emblem of the Mine Safety and Health Administration and be inscribed as follows: ''Permissible Electric Cap Lamp. Approval No. _____ issued to the _____ Company.'' When deemed necessary, an appropriate caution statement shall be added. The size and position of the approval plate shall be satisfactory to MSHA.

(b) *Purpose of approval plate.* The approval plate is a label which identifies the lamp so that anyone can tell at a glance whether or not the lamp is of the permissible type. By it, the manufacturer can point out that his lamp complies with specifications of MSHA and that it has been judged as suitable for use in gassy mines.

(c) *Use of approval plate.* Permission to place MSHA's approval plate on his lamp obligates the manufacturer to maintain the quality of his product and to see that each lamp is constructed according to the drawings which have been accepted by MSHA for this lamp and which are in MSHA's files. Lamps exhibiting changes in design which have not been approved are not permissible lamps and must not bear MSHA's approval plate.

(d) *Withdrawal of approval.* MSHA reserves the right to rescind, for cause, at any time any approval granted under this part.

[Sched. 6D, 4 FR 4003, Sept. 21, 1939, as amended at 43 FR 12314, Mar. 24, 1978]

§ 19.13 Instructions for handling future changes in lamp design.

All approvals are granted with the understanding that the manufacturer will make his lamp according to the drawings which he has submitted to MSHA and which have been considered and included in the approval. Therefore, when he desires to make any change in the design of the lamp, he should first of all obtain MSHA's approval of the change. The procedure is as follows:

(a)(1) The manufacturer shall write to the Approval and Certification Center, Rural Route #1, Box 251, Industrial Park Road, Triadelphia, WV 26059, requesting an extension of the original approval and stating the change or changes desired. With this letter the manufacturer should submit a revised drawing or drawings showing the changes in detail, and one of each of the changed lamp parts.

(2) Where the applicant for approval has used an independent laboratory under part 6 of this chapter to perform, in whole or in part, the necessary testing and evaluation for approval of changes to an approved product under this part, the applicant must provide to MSHA as part of the approval application:

(i) Written evidence of the laboratory's independence and current recognition by a laboratory accrediting organization;

(ii) Complete technical explanation of how the product complies with each requirement in the applicable MSHA product approval requirements;

(iii) Identification of components or features of the product that are critical to the safety of the product; and

(iv) All documentation, including drawings and specifications, as submitted to the independent laboratory by the applicant and as required by this part.

(b) MSHA will consider the application and inspect the drawings and parts to determine whether it will be necessary to make any tests.